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Complexity and Social Media

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Abstract

Our postmodern times make difficult any future's prediction, based on the interacting complexities that challenge any strong theoretical approach of the technological breakthroughs. There are several terms fascinating the researchers of social complexity nowadays. This send us to the possibility of an interdisciplinary study of the Social Media in the complex "Age of Surprise".

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Keywords: complexity; community; social media; social networking, social complexity.

This intends to be a very short paper.

The reason of this choice is quite simple. As it was observed, "when you are trying to impress people with words, the more you say, the more common you appear, and the less in control. Even if you are saying something banal, it will seem original if you make it vague, open-ended, and sphinx-like. Powerful people impress and intimidate by saying less. The more you say, the more likely you are to say something foolish" (Green, 2000).

The research kingdom seems equally permissive for this "law".

Our scientific papers as well.

There are several ideas hunting nowadays the perplexed minds of the humankind future's researchers.

However, we will not refer here at the twenty terms "every futurist should know" (Dvorsky, 2014).

Instead, we will very shortly focus on some common and humble terms used nowadays.

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Instead of an Introduction

Observation 1: Our so called "Age of Surprise" (a) is just another name for the "Era of the Emergent Technologies" (b). During these times, the Social Media (c) became a platform around the debates on the nature, the features, the implications and the effects of the collisions of two very dear concepts of nowadays: "community" (d) and "complexity" (e).

Maximum shortly:

a. The "Age of Surprise" – a term "originally described by the U.S. Air Force Center for Strategy and Technologym at The Air University, as part of a project known as Blue Horizons" (Cohen, 2013) - is a highly unpredictable era of the technological advancement. "In the simplest terms, the Age of Surprise may form the basis for the emergence of new powerful forms of technology that are practically impossible to predict" (Cohen, 2013).

b. The "Era of the Emergent Technologies" is the era of unexpected / radically new technologies emerging. *It is not* an era of just new technologies as Janet S. Twyman is thinking: "New and emerging technologies are those reflecting current advances and innovation in various fields and disciplines" (Twyman, 2011).

c. "Social Media" is deeply related to the "Emergent Technologies"/"Emerging Technologies". If accepting that "social media" unexpectedly "refers to the use of web-based and mobile technologies to turn communication into interactive dialogue" (Collins, 2011), then we have to also accept that "social media is emerging technology which has become vital for our future" (Leikas et al., 2011). Social Media brings back the appurtenance to a community in our lives.

d. Community "is brought back in social scientific discourse." Indeed, "social scientists and even economists increasingly begin to warn against the dwindling of community with all kinds of negative consequences (Etzioni, Putnam, Fukyama, Lane, Frank, Easterlin, Layard). Often it is unclear what their messages precisely are." Yet, "community is a widely used concept, but it is rarely precisely defined. Also, while some take for granted that community is a positive thing, others associate the concept with backwardness and conformity. Neither of these parties shows much interest in a precise specification of the advantages and disadvantages of community. Also not much attention is paid to how community relates to human social nature and to the structural conditions for viable communities" (De Vos, 2004). All these are related to the incredible complexity of nowadays communities.

e. "The idea of complexity is sometimes said to be part of a new unifying framework for science, and a revolution in our understanding of systems the behaviour of which has proved difficult to predict and control thus far, such as the human brain and the world economy." As "complexity" seems to be an umbrella-term, "it is important to ask whether there is such a thing as complexity science, rather than merely branches of different sciences, each of which have to deal with their own examples of complex systems": "is there a single natural phenomenon called complexity, which is found in a variety of physical (including living) systems, and which can be the subject of a single scientific theory, or are the different examples of complex systems complex in ways that sometimes have nothing in common?" (Ladyman, Lambert and Wiesner, 2012).

Observation 2: The conceptual dimensions of the *observation 1* send us to some related terms as: "complex system" (f), "social networking" (g) and/or "social media" (h).

f. A "complex system" is "any system which involves a number of elements, arranged in structure(s) which can exist on many scales. These go through processes of change that are not describable by a single rule nor are reducible to only one level of explanation, these levels often include features whose emergence cannot be predicted from their current specifications" (Kirshbaum, 2002). A weak predictability is associated to "complex" systems everywhere, just because "complex" cannot be reduced to "complicated".

g. “Social networking” “is the grouping of individuals into specific groups, like small rural communities or a neighborhood subdivision, if you will. Although social networking is possible in person, especially in the workplace, universities, and high schools, it is most popular online” (Whatissocialnetworking.com). Social networking brings the complexity of a community in the human relationships’ kingdom.

h. “Social media” is “the social interaction among people in which they create, share or exchange information and ideas in virtual communities and networks” (Wikipedia). So, social media is just another face of the human beings’ interactions.

Instead of a Discussion

Maximum shortly, again:

a. “It is becoming apparent that our environment may be viewed as networked world. From the Internet to the global ecosystem, from the road traffic network to the stock markets, from biological to social systems, massively interconnected, interacting, components make up our vital systems in this world. These systems can be classified as Complex systems” (Antoniou & Pitsillides, 2007). A network is not, first of all, simply complicated. It is, before all, complex.

b. As complex systems, the emerging/emergent technologies of our age of surprise – the so called NBIC (Roco & Bainbridge, 2004) – are highly unpredictable. Nobody could predict, when the Internet was born, several decades ago, how communities will use it nowadays.

c. “The first of these emerging technologies is social media. You probably don’t think of social media as something new or on the horizon, right? You’ve been on Facebook since 2004, you use Twitter fanatically, you even have a blog on WordPress. How is any of this emerging? You might be as surprised as I was to know that not everyone is on all the social networking sites (like I am.)” confesses a head editor (Boyer, 2014).

d. Social Media is a type of complex system as “complex systems are composed of a very large number of different elements with non-linear interactions; furthermore the interaction structure, a network, comprises many entangled loops” (Weisbuch & Solomon, 2007).

e. Social Media has the characteristics of a complex system. “Four properties stand out, each of which adds complexity to a system”: 1. “The system has internal *structure*” which “may consist of many interacting components, a network that describes which components of a system interact, multiple scales of space and/or time, or symmetry”. Moreover, “the components of many complex systems are heterogeneous and form a hierarchy of subsystems”. 2. “The system has *behaviors* that are not characteristic of those observed in “simple” systems”. This is why “the term *emergent* is frequently used to describe behaviors that arise from the interaction of subsystems and are not evident from analysis of each subsystem.” 3. “Systems can adapt to inputs and evolve. *Adaptation* and *evolution* are characteristic of critical infrastructure systems…”. 4. “*Uncertainty* is pervasive in complex systems. Quantifying this uncertainty and determining how it propagates throughout the system is a key aspect of reliable prediction and control” (Guckenheimer& Ottino, 2008).

f. Indeed, the “complex systems are characterized by diversity, ambiguity and unpredictability of outcomes relative to inputs, or changes in conditions. The interaction of three dimensions – number of components, variety of relationships and pace of change in both – means we cannot easily tell what a complex system is going to do. It also means it is more difficult to control. As a general rule, the more a system is made up of people, the more complex it is” (Collinson & Jay, 2012).

Instead of a Conclusion

Thirdly, maximum shortly:

a. “Social networks have been studied for a century” (Narayanan & Shmatikov, 2009).

b. However, as Social Media has all the characteristics of a social network and of a complex system it should be analyzed from the complexity science before all. This means a successful research of social networking has to go beyond the “classic” social sciences perspective – even of those very “modern”, as is, for example, that of Manuel Castells Oliván – and even beyond the so called “social complexity” (that is still keeping the traditional perspective of social sciences) and even beyond the so called “algorithmic complexity” of the social networks (Butts, 2000).

c. The reason is quite simple, as the classic models of research and knowledge have failed to offer an appropriate image of human interactions in online networking: “Much development and humanitarian thinking and practice is still trapped in a paradigm of predictable, linear causality and maintained by mindsets that seek accountability through top-down command and control. Recent years have seen more emphasis on the mechanistic approaches of this paradigm and the kinds of procedures which are increasingly questioned by successful private sector organisations. This has widened the gap between actual aid practices and the rhetoric of the many initiatives which aim to improve them – including aid effectiveness, institutional reform, participation, local ownership and empowerment. In the meantime and in parallel, complexity science has explored and articulated a contrasting world of understanding, helping to explain complex dynamic phenomena in a widely diverse range of settings using insights and concepts like non-linearity, edge of chaos, self-organisation, emergence and coevolution” (Chambers, 2008).

d. This is why, nowadays, we have to reinvent the discovery (Nielsen, 2011), under complexity.

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